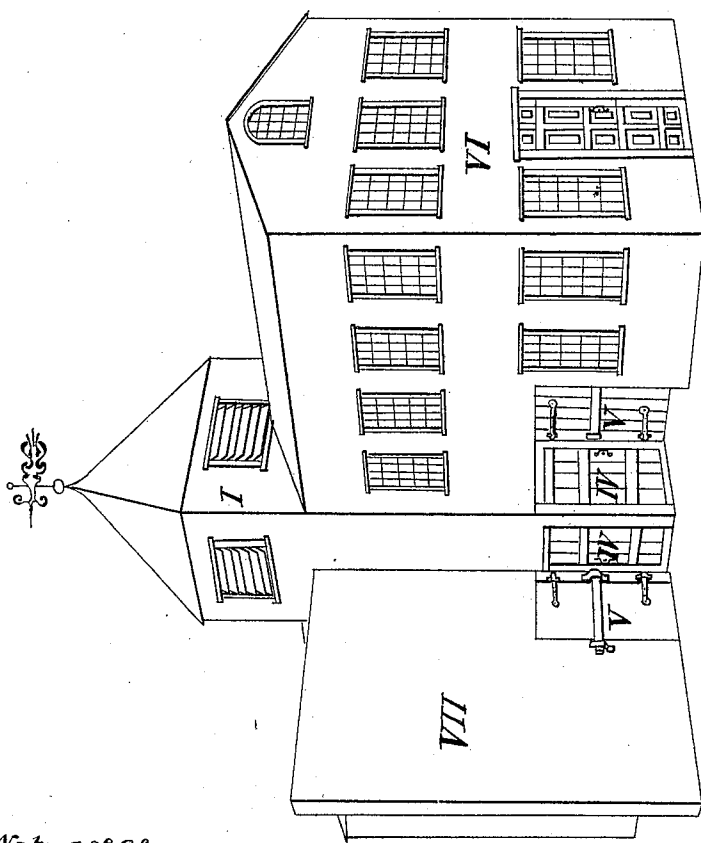
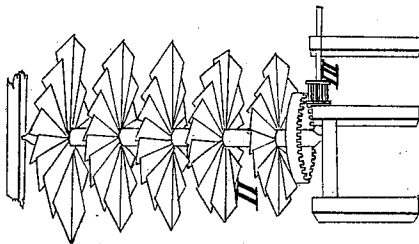


*E. P. Sperry.*

*Wind Wheel.*

*No 363.*

*Patented Aug. 31, 1837*



*Witnesses.*

*Attestation  
Francis Edmund.*

*Inventor:*

*Ebenezer P. Sperry*

# UNITED STATES PATENT OFFICE.

EBENEZER P. SPERRY, OF WENHAM, MASSACHUSETTS.

## IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. 363, dated August 31, 1837.

### *To all whom it may concern:*

Be it known that I, EBENEZER P. SPERRY, of Wenham, in the county of Essex and Commonwealth of Massachusetts, have invented a new and useful Improvement on the Windmills in common use; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in providing the means for increasing as well as regulating and equalizing the power of the air in its application as an agent for operating on or moving any kind of machinery where such a power may be advantageously used.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

First. I construct a square building of any substantial materials and of any convenient dimensions. It may be from ten to fifteen feet square and from fifteen to twenty feet in height, the dimensions, however, to be varied according to the power to be created. This building, for convenience in description, may be denominated the "tower," and is inclosed at the base by eight doors opening inward or outward from the four corners, each side having two doors hung at a post midway. Wherever any considerable power is employed, buildings are wanted for various purposes. I erect four buildings, one on each side of the tower and connected therewith at the base by a waste-gate extending from the post at which the doors of the tower are hung and of the same height with said doors, and above said waste-gates said buildings are adjoining to and connected with the several sides of the tower, the whole when completed forming one entire structure, said four buildings presenting the general form and appearance of wings to the tower, being merely an extension of the four sides in a right line with the several sides of the tower. The basement or ground story of the tower is inclosed by the eight doors aforesaid, which may be opened and closed at pleasure, and said wings or projecting buildings having on each side thereof, at the base adjoining said tower, an open space corresponding in dimensions to the several waste-gates, and which admit the passage of the air through the several doors into the tower, as occasion may

require, or the tower may be round or octagonal; but the several wings connected with the tower, as aforesaid, must form with each other at the several points of junction an angle of ninety degrees, the object of said wings being as forming a distinct and material part of my improvement to present an extended surface for the purpose of condensing and concentrating the currents of air, which are thus made to pass with increased power directly upon the arms of the mill, as explained hereinafter, through the doors on the windward side of the tower. This extended surface may be created without the erection of buildings by a simple structure sufficiently firm to resist the wind, extended, as aforesaid, from four points at the tower, so as to form with each other right angles at the tower.

Second. Within the tower and above the doors aforesaid a vertical axis or shaft is set, and is made to revolve by means of a successive series of arms fastened on spokes, which are mortised into said axis like the spokes in the hub of a wheel, or in any other manner, so as to be firm and substantial. The arms, which are fastened on the lower surface of the spokes, are made of boards or sheet-iron or any other suitable material, and are as thin and narrow as may be consistent with the necessary firmness and strength. They are made somewhat in the form of a heater, diverging from the axis, and are a little declined, so that their surface forms an angle of about thirty-three degrees with the horizon. The series of arms, as aforesaid, are separated from each other about half the distance of the length of said arms, being shortest and narrowest in the lowest series and gradually enlarging in the surfaces presented in the ascending series, so as that the wind may act upon the whole series with its full force, or as nearly so as possible, and so, also, as that the planes of said several series, the arms thereof declining in manner as aforesaid, may present as little resistance to the wind as possible in their revolutions. Around each of said series of arms an iron band may be extended at the extremities for greater firmness and dishing outward to draw in the wind.

Third. The said axis or shaft being set so as to create in its revolution as little friction

as possible, with the series of arms appended thereto in manner aforesaid, the doors and waste-gates at the base of the tower are to be opened or shut, according to the direction and violence or power of the wind. If there be more wind than is wanted, the excess may be let off by opening one or more of the waste-gates or doors, or both, as may be necessary. In this manner the power may be equalized and rendered in a great measure steady and uniform. If there be a deficiency of wind, its power may be increased by the use of canvas or sail-cloths extended over and across the wings aforesaid on the windward side of the tower.

What I claim in my invention, and desire to secure by Letters Patent, is—

1. The aforesaid construction and arrangement of buildings or of more simple and less expensive structures, presenting in the manner aforesaid an extended surface for the purpose of condensing and concentrating the

currents of air and throwing the whole force thus concentrated and condensed directly upon the arms of the windmill.

2. A series of arms on the same vertical shaft or axis, which, while they receive the whole power of the air condensed and concentrated in the manner and by the means aforesaid, operate so as in a great measure to equalize the action of said power, while at the same time, by means of their peculiar structure, as aforesaid, they present as little resistance to the air as possible in their revolutions.

3. The means used for letting off an excess of wind by waste-gates and doors and for increasing its power by the use of canvas or sail-cloths or other suitable materials.

EBENEZ. P. SPERRY.

Witnesses:

ASAHEL HUNTINGTON,  
NATHL. F. SAFFORD, Jr.